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I hereby certify that annexed is a true copy of the Provisional Specification as filed on 11 March 2002 with an application for Letters Patent number 517724 made by REGINALD LYALL REID.

Dated 27 March 2003.

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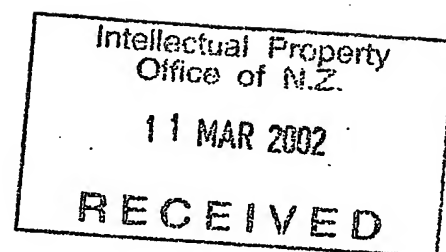
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Commissioner of Patents



**PATENTS FORM NO. 4**

Appln Fee: \$50.00  
Pipers Central Ref: 12-2271NZ

**PATENTS ACT 1953****PROVISIONAL SPECIFICATION****IMPROVEMENTS IN AND RELATING TO PERSONAL  
CONVEYANCE FOR RECREATIONAL USE**

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do hereby declare this invention to be described in the following statement:

5 **IMPROVEMENTS IN AND RELATING TO PERSONAL CONVEYANCE FOR  
RECREATIONAL USE**

10 **Technical Field**

This invention relates to improvements in and relating to personal conveyance for recreational use.

15 In particular, the personal conveyance is an improved roller skate that may be used singularly, or as a pair. The roller skate is designed to have a lowered and altered center of gravity from that found with traditional roller skates, in-line skates, scooters, skate boards, or other similar types of conveyances used recreationally, competitively, or for general transportation. The lower center of gravity provides improved stability and lessens the likelihood for injury to the ankles of users.

20 The roller skate also includes larger diameter wheels that extend above the sides and top surface of the roller skate base plate. The position and size of the wheels contribute to improved ankle protection, provide the potential for improved speed and a smoother ride and yet afford the user with the ability to retain directional control of the skates.

25 Whilst the invention herein described relates to an improved roller skate, the invention may however, have applications outside this field. For example, the principles of design and the performance aspects may be applied to a range of other conveyances (and not just those used for recreational use of which some have been mentioned above).

30 **Background Art**

A number of conveyances for recreational use are available in the market place and some of these have been described in the prior art. Some of these relate to traditional roller

5 skate designs where the base plate (footplate) or truck of the roller skate operates as the foot receiving portion of the skate and to which typically four wheels are attached to axles or similar. The wheels are typically small and are located beneath the base plate in a standard rectangular orientation pattern, where two wheels are positioned towards the front of the skate and two towards the back. Whilst the wheels are displaced towards the  
10 sides of the base plate, portions of the wheels do not typically extend significantly laterally from the sides of the base plate, and if they do, there is typically no portion of the wheel that extends significantly above, or through, the top surface of the base plate, in a manner such that the user's shoe would be bordered by the wheels.

15 Alternatives to the traditional four wheeled roller skate include in-line skates where the wheels are located beneath the base plate and are aligned centrally along the horizontal longitudinal axis of the skate. New Zealand Patent No.145584 describes an example of a roller skate with a single row of wheels. This design limits any option for the wheels to extend from the sides of the base plate. Further, having large wheels that would extend  
20 above the base plate is not an option with this design.

Having larger wheels (or even tracks) extending from the sides of the base plate can provide a number of advantages which are not available with existing roller skate designs. For example, the larger wheels enable speed to be achieved more easily, for less  
25 effort. The larger wheels also enable the conveyance to be used over a range of ground surfaces, typically not available to users of roller skates with small wheels. Where the larger side wheels extend typically above the base plate to the vicinity of the ankles the wheels provide additional side support/protection for the user's ankles. In addition, where

5 the larger side wheels extend laterally from the base plate, or even a portion of the wheels extends above the base plate, the centre of gravity can be effectively altered (such as lowered) to provide improved stability of (and hence improve the safety of) the conveyance during use.

10 Some skates in the prior art may also include additional features, such as suspension systems, or systems for allowing a pair of the wheels (typically the front pair) to be independently operated to provide the user with varying degrees of directional control. The wheels may be attached to a pivotable plate, or a split axle, to allow for such control. For example, New Zealand Patent No. 240943 relates to a roller skate truck having  
15 hemispherical elastomeric suspension mountings. Further, in New Zealand Patent No.181121 a steerable roller skate is described. The wheels are below the foot plate and are small, being typical of most roller skate designs. These features are directed to improve the control and operation of the skates, but not necessarily the safety or stability aspects.

20 Similar features as found in the various roller skate designs have also been applied (in various modified versions) to other conveyances, such as skate boards and scooters. The design of skate boards has typically focused on improving the manoeuvrability and directional control of the skate board. For example, the invention of New Zealand Patent  
25 No.261599 relates to a wheeled conveyance similar to a skate board where the user stands on a pivotable plate that is connected to steerable front fork by cables.

Similarly, the invention of New Zealand Patent No.294782 is also a skate board which has its front wheels mounted to biased suspension arms that are pivoted to a supporting

5 frame. The wheels are steered by a board roll linkage. This skate board design only includes three wheels of which the front ones are capable of being steered.

An alternative design is found in New Zealand Patent No. 251260 which relates to a skateboard where the wheels, whilst large and mounted outboard from the sides of the board, are displaced some distance lateral from the board and there are only three wheels. The board is also fitted on to a frame configuration .

Whilst there are some featural similarities between skates and the range of skateboards available, skateboards have very obvious differences because of the way the skateboards are used.

Many skateboards have wheels that are moderately small and located beneath the board and do not extend from the side of the board. Others may only have three wheels. Some four-wheeled skate boards may have large wheels and some may even have these wheels extend laterally from the sides of the boards. However, in such designs, the wheels are not typically located directly adjacent the board so as to support a user's ankles, nor do they typically extend any significant distance above the board itself. To have such features may instead be more of a hindrance to the user of the skateboard as the wheels may impact on the users' ready ability to reposition their feet on the board. This is a consequence of the way a skateboard is ridden. Accordingly, a user typically stands at an angle on a skateboard (in a typical skate board fashion) and repositions the feet as required, rather than the feet remaining in the stance typically employed when using skates or a scooter.

5 Further, skateboards are not designed to be actually fitted to either or both feet and they are not designed to be used as a pair in the same manner as one would use skates.

Therefore, in designing an alternative to existing conveyances, consideration must be given to a range of issues, including mode of operation, desirability to secure the foot to  
10 the conveyance, emphasis on where the centre of gravity is for balance/safety, speed requirements, manoeuvrability and so forth. Where the conveyance is an improved form of roller skate the positioning of the wheels and the weight of the skates will also determine the ability of a person to balance on and drive the skates.

15 It would therefore be advantageous to have an improved recreational conveyance that provided an alternative to traditional and/or existing roller skate design as well as providing an alternative to existing skate board, or even scooter, designs whilst at the same time provided improved speed, stability and safety and as such obviated at least some if not all of the disadvantages of the various prior art systems. Such an  
20 improvement may include:

- a) Providing a conveyance that was able to be used singularly, or as a pair as required for either or both recreational and competitive use, or as a general transportation device.
- 25 b) Having wheels or other motive means of a diameter and form and/or an overall structure of the conveyance that allowed the conveyance to be serviceable for and used over a range of ground surfaces.
- c) Providing a conveyance where the center of gravity was such (preferably lowered) as to provide greater stability to the user when using the conveyance.

- 5 d) Providing a conveyance that afforded through its design, improved support and/or protection from injury to the user's ankles .
- e) Being configured to improve the speed capabilities of the conveyance, but without including unnecessary incumbent additional weight, disadvantages to operational control, reduced comfort or reduced safety when using the conveyance.
- 10 f) Providing a simple but effective option to the disadvantages of prior art systems.

It is an object of the present invention to at least address some of the foregoing problems or to at least provide the public with a useful choice or alternative system.

- 15 Further aspects and advantages of the present invention will become apparent from the ensuing description which is given by way of example only. It should be appreciated that variations to the described embodiments are possible and would fall within the scope of the present invention.

20 **Disclosure of Invention**

According to one aspect of the present invention, there is provided a personal conveyance for recreational use, the conveyance including:

- ) at least one foot supporting member, the foot supporting member including, or including provision for attachment of, at least two axle assemblies adapted to receive rotational
- 25 motion-facilitating means,
- the personal conveyance characterised by the motion-facilitating means being positioned relative to the foot supporting member such that at least a portion of the motion – facilitating means extends in a vertical plane above and perpendicular to the foot



5 supporting member in a manner whereby the overall center of gravity of either or both the conveyance and a person standing thereon, is effected for stability.

According to another aspect of the present invention there is provided a personal conveyance substantially as described above wherein the foot supporting member is  
10 adapted to receive a user's foot/shoe.

According to another aspect of the present invention there is provided a personal conveyance substantially as described above wherein the foot supporting member is adapted to include gripping means to grip or retain a user's foot/shoe in position on the  
15 foot supporting member.

According to another aspect of the present invention there is provided a personal conveyance substantially as described above wherein the gripping means includes either or both fixing apparata such as straps, screws and so forth, and configured portions to  
20 receive and hold the user's foot/shoe in place on the foot supporting member, whether the shoe is fixed permanently or temporarily to the foot supporting member.

According to another aspect of the present invention there is provided a personal conveyance substantially as described above wherein the at least two axle assemblies  
25 comprise two shafts each supporting at least one motion-facilitating apparatus at each distal end of each shaft.

According to another aspect of the present invention there is provided a personal conveyance substantially as described above wherein each axle assembly comprises a

5 shaft capable of independently supporting at least one motion-facilitating apparatus at the outer distal end of the shaft.

According to another aspect of the present invention there is provided a personal conveyance substantially as described above wherein the motion-facilitating apparatus,  
10 when attached to a distal end of an axle, extends beyond the sides of the foot supporting member.

According to another aspect of the present invention there is provided a personal conveyance substantially as described above wherein at least a portion of the motion-  
15 facilitating apparatus, when attached to a distal end of an axle, extends in a vertical plane above and perpendicular to the upper surface of the foot supporting member.

According to another aspect of the present invention there is provided a personal conveyance substantially as described above wherein the motion-facilitating apparatus  
20 may be attached to a distal end of the axle such that its centre of rotation is substantially positioned at any one of: below the lower surface of the foot supporting member, in line with the horizontal plane of the foot supporting member, above the upper surface of the foot supporting member.

25 According to another aspect of the present invention there is provided a personal conveyance substantially as described above wherein the position of the motion-facilitating apparatus relative to the axle and the foot supporting member determines the preferred centre of gravity as determined for stability.

5 According to another aspect of the present invention there is provided a personal conveyance substantially as described above wherein the centre of gravity is lowered to effect preferred stability.

For ease of reference, the terms foot supporting member and motion-facilitating means  
10 shall now be referred to as the base plate and the wheels, respectively. However, it should be appreciated that use of these terms is not intended to limit the scope of the invention. For example, the motion-facilitating means may also include rotating tracks.

In preferred embodiments of the present invention, the base plate is preferably flat and  
15 substantially elongate, being dimensioned to receive and accommodate a user's foot or shoe, comfortably. However, it should be appreciated that whilst a preferably flat base plate allows greater options for accommodating a user's foot and/or shoe, the base plate may be contoured in overall shape to conform to the shape of a pre-existing shoe design for use specifically with the base plate, or may take any aesthetically pleasing or practical  
20 shape as required.

The upper surface of the base plate if flat may also, for example, be varyingly configured. Accordingly, the upper surface may be smooth, or include grooves or raised portions and so forth to improve the gripping nature, or traction of the surface. The configuration of  
25 the upper surface of the base plate is dependent upon whether the base plate is to accommodate a user's shoe, or be fitted with a pre-assembled shoe specifically designed for use with the base plate.

- 5 The attachment or securing of the user's shoe or foot to the base plate may also be achieved by various gripping means designed or adapted for use with the conveyance. One example, of such gripping means may be employed include straps/ties that wrap around various portions of a foot, shoe or users' ankles. The straps may be arranged at any point along the length of the base plate, may be attached and extend from one side and be secured to the opposite side of the base plate, or two straps may alternatively be used and fixed/connected together at some point substantially central to the shoe, foot or base plate. In other embodiments, the straps may traverse the foot or shoe and hold it secure by downwards pressure exerted by the strap on the foot/shoe, or the straps may engage, be tied or otherwise affixed to the shoe or foot.
- 10
- 15 The straps may be secured in place on the base plate, to itself or another strap, or to the foot/shoe by appropriate means. For example, buckles, hook and pile systems, press studs, ties and so forth may be used. Safety release systems may also be included.
- 20 Other forms of gripping means used with, or adapted for use with, the conveyance may include screws, bolts, press studs and so forth to particularly affix a shoe to the base plate (whether the shoe is a pre-designed shoe specifically for use with the conveyance, or a user's existing shoe the user has chosen to adapt to be used on the base plate).
- 25 Use of such gripping means is preferable to ensure the foot or shoe is firmly held in place on the base plate. Minimising longitudinal or lateral movement of the users' feet or shoes on the base plate in turn contributes to improved safety for the user by minimising the likelihood of the foot/shoe becoming loose from the conveyance, minimises the likelihood of injury (particularly to ankles), improves the ability to manoeuvre the

5 conveyance and improves the ability to initiate and maintain preferred operation of the conveyance, among other considerations.

In one embodiment, the lower surface of the base plate may include attachment means, or may be adapted to receive attachment means capable of engaging with the axles. In other  
10 embodiments where the axles may include short independent shafts that are attached to side edges of the base plate and the attachment means may also interact with either or both the upper and lower surfaces of the base plate.

In one preferred embodiment, the at least two axles may include two substantially  
15 elongate shafts. One axle in such an embodiment may be displaced towards the front leading end of the base plate. The second axle may preferably be displaced towards the rear trailing end of the base plate. The axles are preferably independent of each other, although in some embodiments the axles may be connected. In some embodiments, the front axle may be pivotally mounted to enable directional movement to be achieved.

20 Each axle also preferably extends transversely beneath the base plate. To each end of each axle is then attached at least one wheel. In yet other embodiments, the axles may include shorter independent axles, each dedicated to its own wheel. In further embodiments any combination of appropriate axle arrangements may be employed. The  
25 choice of axle arrangement will be dependent upon the size, number and location of the wheels, the desired use of the conveyance (merely recreational or for speed), the terrain over which the conveyance is designed to travel, and so forth.

5 For the purpose of this specification, the term axle shall mean and include any supporting member, beam, or shaft designed to carry a rotational motion-facilitating means such as a wheel, or wheel/track combinations (depending on the type of terrain over which the conveyance may be used). The wheel may be attached to it, driven by it, or freely mounted on it, depending on the movement and performance required from such rotational means.

The rotational means, or wheels, of the present invention preferably include bearings for a smoother ride and improved wheel performance. The wheels may be made of thermoplastics, rubber or any combination of these materials, with the inclusion of other materials as required for strength, durability, serviceability, and so forth. The materials used will also depend on effecting wheels having preferred weight to size ratios, the type of ground over which the conveyance will be used, the speeds the conveyance may be required to attain, and so forth.

20 Depending on the type of axle system existing off-the-shelf wheels may be used. Most recreational and fitness skates use wheels that when attached to the axle include a hollow spacer which extends to the outer edges of both bearings, when inserted in the wheel. Usually these spacers are plastic. The axle passes through the spacer. When removing these types of spacers in servicing the wheels/bearings of the wheels, it may be preferable to replace them with metal ones. The benefit of using metal spacers is that the wheels tend to spin better. Some skates have a spacer which is push fitted or may be threaded. Some fitness skates use an axle system which similar to that used on speed skates. These

5 types use a floating spacer between the bearings, with a larger diameter axle aligning everything up.

Preferred embodiments include four large wheels arranged in a rectangular configuration, such that there are two wheels at the rear end of the base plate and two wheels towards the front leading end of the base plate. Large diameter wheels are preferred to improve the smooth ride effected by them, the speed which may be more easily reached for less effort, and because wider diameter wheels are required to effect other performance and safety criteria of the conveyance, as discussed below.

15 The wheels preferably extend from the axles on opposite sides of the plate, rather than beneath the plate as with traditional roller skates. The wider diameter wheels lend themselves to this configuration, particularly where the conveyance is also required to have a preferred centre of gravity. Having the wheels extend laterally from the sides of the base plate enables greater variability in the height adjustment of the base plate and hence control over the centre of gravity.

Preferably the centre of gravity is lowered. Having a lowered centre improves the stability of the conveyance for users. The lowered centre of gravity is determined to effect preferred stability, but without negatively impacting on the performance, manoeuvrability of, or the propulsion of the conveyance. The lack of stability encountered by users of existing skate design, contributes to the ease with which a user can so easily lose balance and fall over, effecting injury to many parts of the body in the process. Where balance can be improved and the risk of falling minimised, the overall safety is improved and this translates to the potential for greater enjoyment.

5 The wheels are preferably of a large diameter, such that when attached to the axle, at least a portion of the wheel extends in a vertical plane above the upper surface of the base plate. In preferred embodiments, the large wheels may sit adjacent to the sides of the base plate and thereby effectively enclose the user's ankles within the boundaries created  
10 by the wheels. This arrangement may serve as additional support and protection for the users' ankles. The larger wheels may minimise the likelihood of the conveyance tipping over on to its side, thereby making it less likely that the user may twist an ankle – which is a known likelihood with conventional skates. By effecting a design to minimise the likelihood of skates tipping sideways, this contributes to less ankle injury and an overall  
15 safer recreational conveyance.

The larger wheels also tend to lower the rolling resistance experienced with smaller diameter wheels and as such enable speed to be achieved for much less effort. Where such conveyances are used competitively in speed trials, the larger wheeled conveyances  
20 have potentially realisable advantage. Less rolling resistance is encountered by each wheel because of the position of the central axis of rotation of each wheel in the present invention being such that the position of the central wheel bearing relative to the base plate is higher than is ever achievable in traditional roller skates, or other recreational conveyances such as scooters and skate boards.

25 Further, less rolling resistance combined with larger diameter and potentially wider wheels (in some embodiments) also enables the conveyance to be used more effectively on uneven ground, grassed surfaces and gravelled surfaces where traditional roller skates, or those having wheels positioned beneath the base plate, or even those with small wheels



5 have difficulty traversing. Combined with improved safety features commensurate with the design features as described, such conveyances are differentiated from those in the prior art.

10 In some embodiments however, the base plate may be widened and as such the wheels may be positioned lateral to the foot supporting part of the base plate, but still located within the external edges of the base plate. In such embodiments, the base plate may include apertures through which a portion of the wheel extends above the upper surface of the base plate. Again, even with this embodiment, the large wheels effectively enclose the user's ankles within the boundaries created by the wheels to serve as additional  
15 support and protection for the users' ankles.

Whilst preferred embodiments include one wheel per outer distal end of each axle, tandem wheels may be an option in some embodiments whether in relation to either or both the front and back wheels.

20 In some embodiments of the present invention there may also be optionally included a braking means. Such braking means may include any suitable means capable of being employed with, or adapted for use with, the invention. For example, it may include a substantially resilient stop which is deployed against the ground surface by tipping the  
25 base plate downwards.

Such systems are known in the prior art and are typically attached to the base plate, at either the front or the rear of the plate in a similar manner to that found with conventional

8 roller blades/skates. The stop may be made of rubber, hard thermoplastics materials or any other suitable material.

In preferred embodiments, the invention can be used as a pair – in the same manner as skates, or as a single unit – in the same manner as a scooter (without the handle) or a  
10 skate board (although without the side-tilting feature of a skateboard).

In yet other embodiments, a removable handle may be provided that may be attached to a portion of the base plate, thereby converting the conveyance from a roller skate to a modified scooter. The provision for attachment of the handle may be included in a base  
15 plate designed to accommodate a right or a left foot – to enable the modified skate to be used as a scooter by people having either left or right dependent tendencies. In other embodiments, the base plate may be of a universal shape, capable of accommodating either a left or right foot; thereby more appropriately predisposing the conveyance to use either singularly or as a pair.

20 In yet other embodiments, particularly those where the base plate may be widened and/or in embodiments where the wheels project through apertures in the base plate, the placement of the wheels and the extent of projection of the wheels above the base plate may be adjusted to enable a single conveyance to be used in a manner similar to that of a  
25 skate board. In such embodiments, pivoting axle mounts and/or suspension systems may be added to effect the versatility of manoeuvrability and directional control required from a skateboard-type conveyance.

5 As can be appreciated variations to and from the above described embodiments may be made without deviating from the scope of the present invention.

### **Brief Description of Drawings**

Further aspects of the present invention will become apparent from the following  
10 description, given by way of example only and with reference to the accompanying drawings in which:

Figure 1 is a top perspective view of the conveyance of the present invention in accordance with one embodiment of the present; and

Figure 2 is a top plan view of the conveyance of the present invention in accordance  
15 with one embodiment of the present invention; and

Figure 3 is a front diagrammatic perspective view of a person using the conveyance of the present invention; and

Figure 4 is a side view of a person using the conveyance of the present invention;  
and

20 Figure 5 is an enlarged front diagrammatic perspective view of a person using the conveyance of the present invention; and

Figure 6 is a enlarged side view of a person using the conveyance of the present invention; and

Figure 7 is a front view of the conveyance in accordance with one embodiment of  
25 the present invention; and

Figure 8 is an enlarged rear diagrammatic view of a person using the conveyance in accordance with one embodiment of the present invention; and

5 Figure 9 is a top perspective view of a shoe positioned on the base plate of the conveyance in accordance with another embodiment of the present invention; and

Figure 10 is a bottom perspective view of the base plate of the conveyance in accordance with another embodiment of the present invention, and

10 Figure 11 is a top perspective view of the base plate of the conveyance in accordance with another embodiment of the present invention.

### Best Modes for carrying out the Invention

) With reference to the diagrams (Figures 1 to 11) by way of example only, there is provided personal conveyance apparatus (generally indicated by arrow (1)) for recreational  
15 use by individuals (2). Whilst the emphasis is on recreational use, the conveyance may be used competitively, in speed events and/or as a general transport means.

The conveyance as described herein is described with reference to an improved roller  
20 skate design. However, the design features and performance characteristics of the conveyance means it is able to be applied as a scooter, a skate board and so forth.

) The conveyance (1) as shown in Figures 1, 2, 7, 9 and 10 particularly, includes at least one foot supporting member, or base plate (4). The base plate is preferably flat and  
25 substantially elongate. In Figures 3-6, 8 and 9, the base plate is adapted to receive a user's foot/shoe (3), being dimensioned to receive and accommodate a user's foot or shoe, comfortably.

5 The base plate may be of a universal shape, capable of accommodating either a left or right foot, thereby more appropriately predisposing the conveyance to use either singularly or as a pair. Alternatively, the base plate (4) may be shaped such that one of a pair is dedicated for use with the user's right foot and the other for use with the user's left foot. However, the base plate may be contoured in overall shape to conform to the shape  
10 of a pre-existing shoe design for use specifically with the base plate, or may take any aesthetically pleasing or practical shape as required.

Gripping means in the form of straps (7) shown in Figure 9, for example, are included to grip or retain a user's foot/shoe in position on the foot supporting member. Use of such  
15 gripping means is preferable to ensure the foot or shoe is firmly held in place on the base plate to minimise longitudinal or lateral movement of the users' feet or shoes and the likelihood of the foot/shoe becoming loose from the conveyance. This in turn minimises the likelihood of injury (particularly to ankles), improves the ability to manoeuvre the conveyance and improves the ability to initiate and maintain preferred operation of the  
20 conveyance, among other considerations.

Although any arrangement of straps, screws, configured portions raised protrusions and so forth may also be included (although not shown in the figures), to receive and hold the user's foot/shoe in place on the base plate (4), whether the shoe is fixed permanently or  
25 temporarily to the foot supporting member.

The foot supporting member/base plate (4) includes, or includes provision for attachment of, at least two axle assemblies (5) adapted to receive rotational motion-facilitating means or wheels (6). As shown in Figures 1, 3, 5, 6, 7, 8 and 9 the personal conveyance is

5 characterised by the motion-facilitating means/wheels (6) being positioned relative to the base plate (4) such that at least a portion of the wheels extends in a vertical plane above and perpendicular to the base plate(4) in a manner whereby the overall center of gravity of either or both the conveyance and a person standing thereon, is lowered (as shown in Figure 1 and 5, particularly), to effect improved stability.

10 One embodiment of the personal conveyance (as shown in Figures 9-11) includes at least two axle assemblies (5) which comprise two shafts each supporting at least one wheel (6) at each distal end of each shaft (5). Each axle extends transversely beneath the base plate. One axle in such an embodiment is displaced towards the front leading end of the base  
15 plate. The second axle is displaced towards the rear trailing end of the base plate. The axles are preferably independent of each other, although in some embodiments the axles may be connected. In some embodiments, the front axle may be pivotally mounted to enable directional movement to be achieved.

20 In another embodiment of the personal conveyance (as shown in Figures 1-8) each axle assembly (5) comprises a shaft capable of independently supporting at least one wheel (6) at the outer distal end of the shaft. The choice of axle arrangement will be dependent upon the size, number and location of the wheels, the desired use of the conveyance (merely recreational or for speed), the terrain over which the conveyance is designed to  
25 travel, and so forth.

In the embodiments illustrated in Figures 1-11, the wheels (6) when attached to a distal end of an axle, extends beyond the sides of the foot supporting member.

5 Accordingly, the wheels (6) of the personal conveyance in Figures 9 to 11 are attached to a distal end of the axle such that its centre of rotation is substantially positioned in line with the horizontal plane of the base plate (4). Whereas the wheels (6) of the personal conveyance in Figures 1 to 8 are attached to a distal end of the axle such that its centre of rotation is substantially positioned above the upper surface of the base plate (4).

10 As can be seen in Figures 1 to 11, the position of the wheels (6) relative to the axle (5) and the base plate (4) determines the preferred centre of gravity as determined for stability. In these figures, the centre of gravity is lowered to effect preferred stability.

15 The embodiments illustrated in Figures 1 to 11 include four large wheels (6) arranged in a rectangular configuration, such that there are two wheels at the rear end of the base plate and two wheels towards the front leading end of the base plate. Large diameter wheels are preferred to improve the smooth ride effected by them, the speed which may be more easily reached for less effort, and because wider diameter wheels are required to effect  
20 other performance and safety criteria of the conveyance.

The wheels (6) extend from the axles on opposite sides of the plate, rather than beneath the plate as with traditional roller skates. The wider diameter wheels lend themselves to this configuration, particularly where the conveyance is also required to have a preferred  
25 centre of gravity. Having the wheels extend laterally from the sides of the base plate enables greater variability in the height adjustment of the base plate and hence control over the centre of gravity. Accordingly, for example, the centre of gravity in embodiments illustrated by Figures 1-8 will be lower than the centre of gravity in the embodiments of Figures 9-11. However, both embodiments and any other variations

5 using the same concept are typically more stable than the traditional roller skates where the wheels are below the base plate, or substantially below the base plate.

The wheels (6) are preferably of a large diameter, such that when attached to the axle (5), at least a portion of the wheel (6) extends in a vertical plane above the upper surface of the base plate (4). In Figures 1 to 11, the large wheels (6) sit adjacent the sides of the base plate (4) and thereby effectively enclose the user's ankles within the boundaries created by the wheels (as shown in Figures 3-6, 8). This arrangement acts as additional support and protection for the users' ankles.

15 In some embodiments (not shown) however, the base plate (4) may be widened and as such the wheels may be positioned lateral to the foot supporting part of the base plate, but still located within the external edges of the base plate and the base plate may include apertures through which a portion of the wheel extends above the upper surface of the base plate. Again, even with this embodiment, the large wheels effectively enclose the user's ankles within the boundaries created by the wheels to serve as additional support and protection for the users' ankles.

25 Whilst the illustrated embodiments include one wheel (6) per outer distal end of each axle (5), tandem wheels (not shown) may be an option in some embodiments whether in relation to either or both the front and back wheels (6).

The embodiments illustrated in Figures 9-11 include a braking means (8). Such braking means may include any suitable means capable of being employed with, or adapted for use with, the invention. For example, in the illustrated embodiment the braking means (8)



5 resilient stop which is deployed against the ground surface by tipping the base plate  
(4) downwards.

As can be appreciated, the invention can be used as a pair – in the same manner as skates,  
or as a single unit – in the same manner as a scooter (without the handle) or a skate board  
10 (although without the side-tilting feature of a skateboard). However, a removable handle  
(not shown) may also be provided that may be attached to a portion of the base plate,  
thereby converting the conveyance from a roller skate to a modified scooter.

Aspects of the present invention have been described by way of example only and it  
15 should be appreciated that modifications and additions may be made thereto without  
departing from the scope thereof.

REGINALD LYALL REID

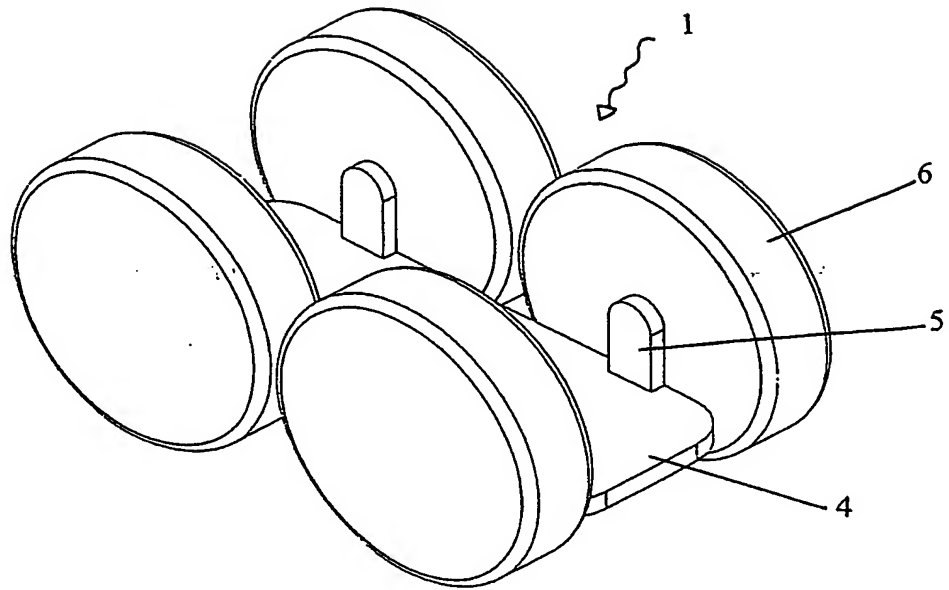
By his attorneys

*Denise Lynne Harding*

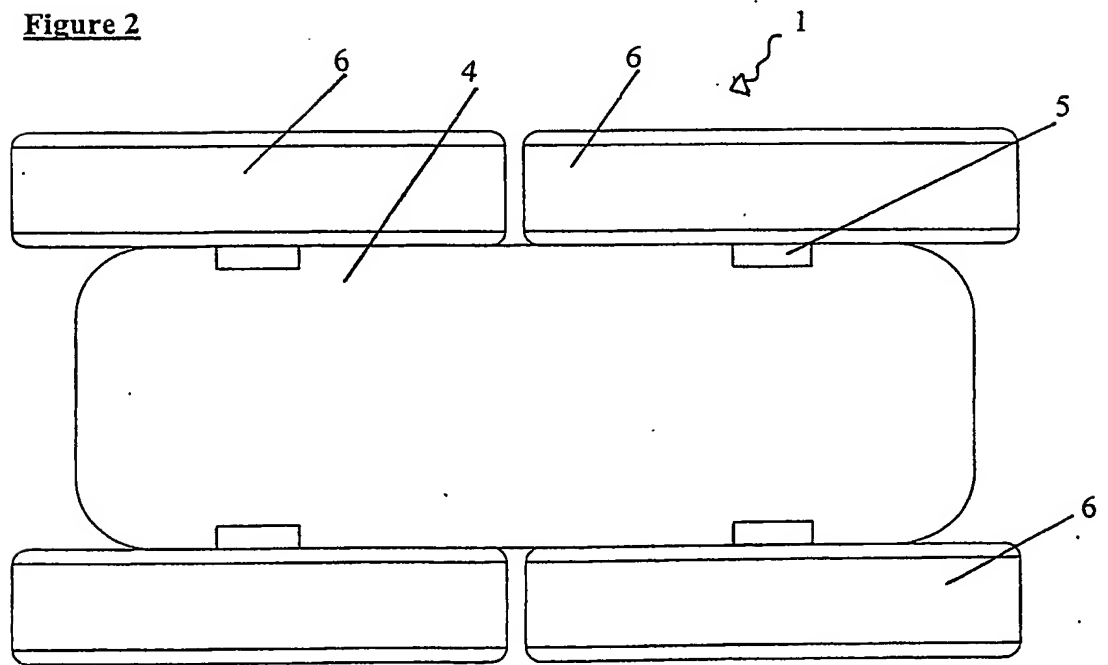
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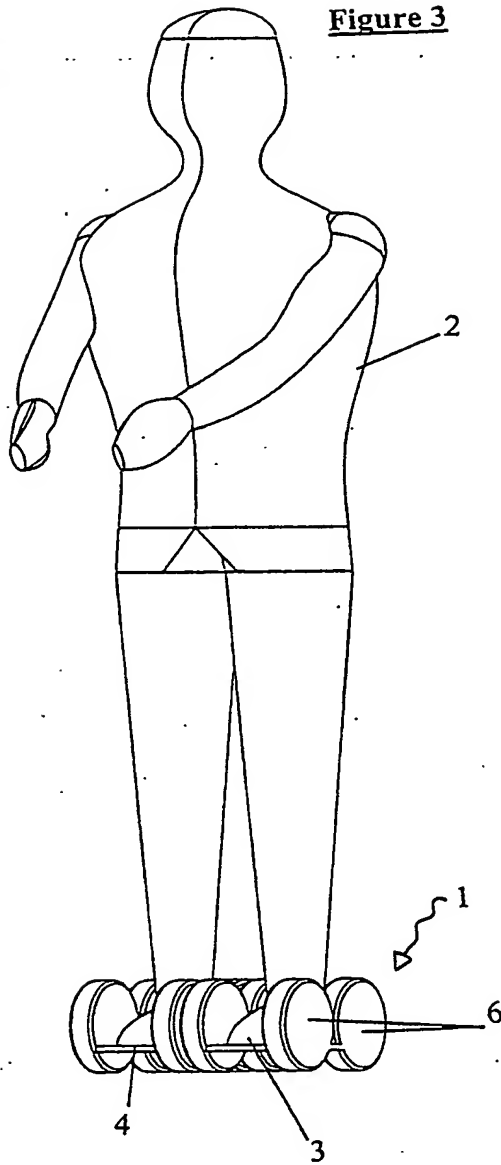
**Figure 1**



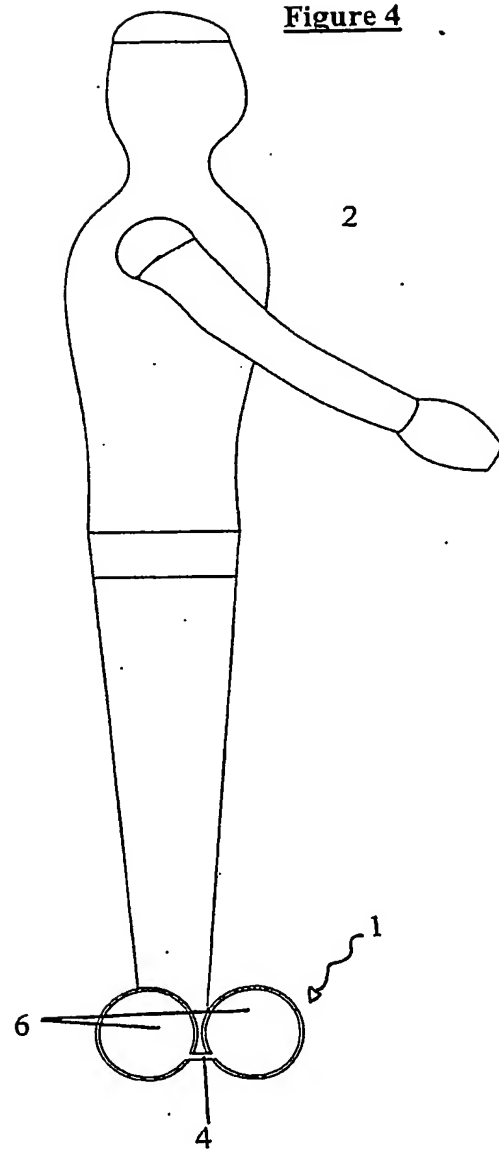
**Figure 2**



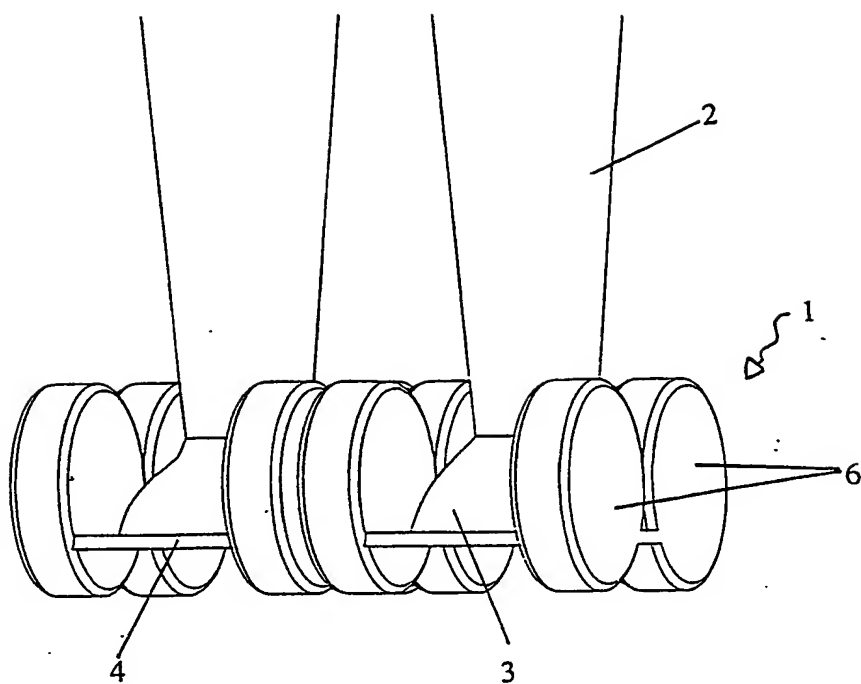
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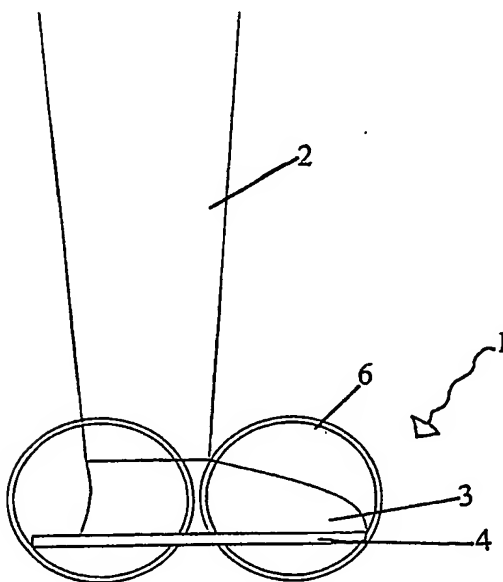
**Figure 4**



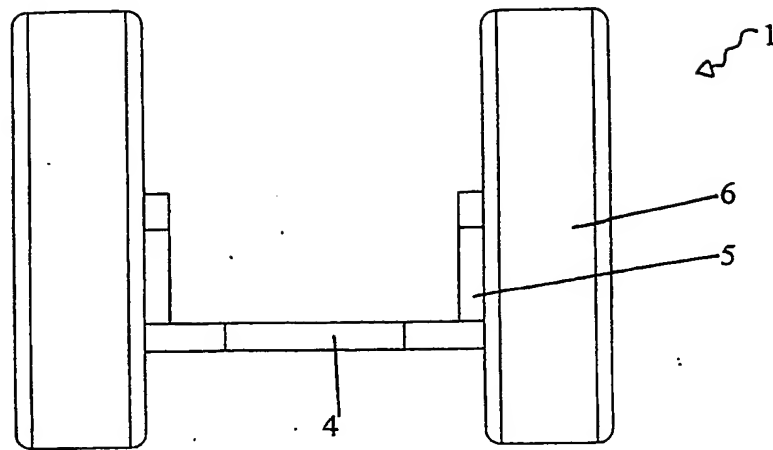
**Figure 5**



**Figure 6**



**Figure 7**



**Figure 8**

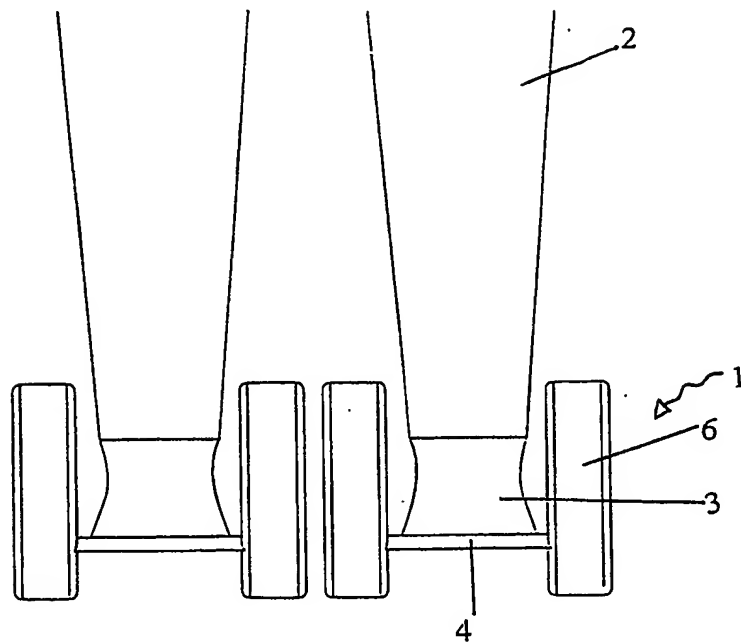
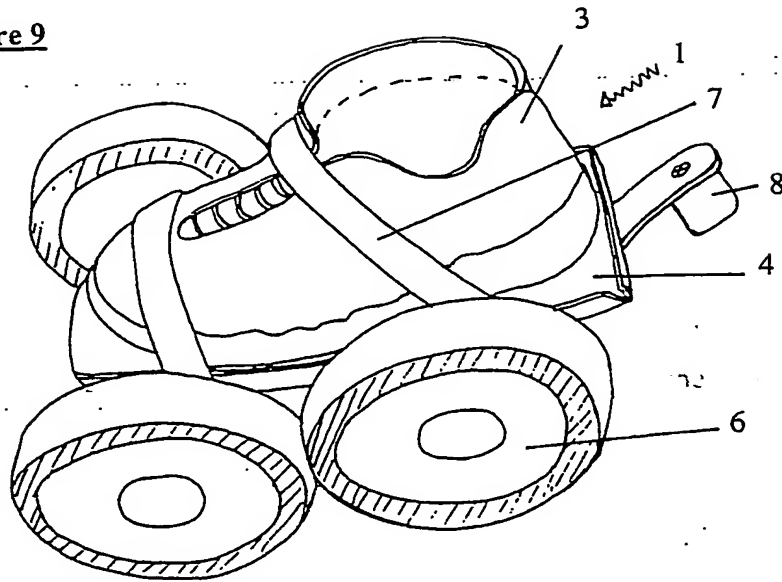
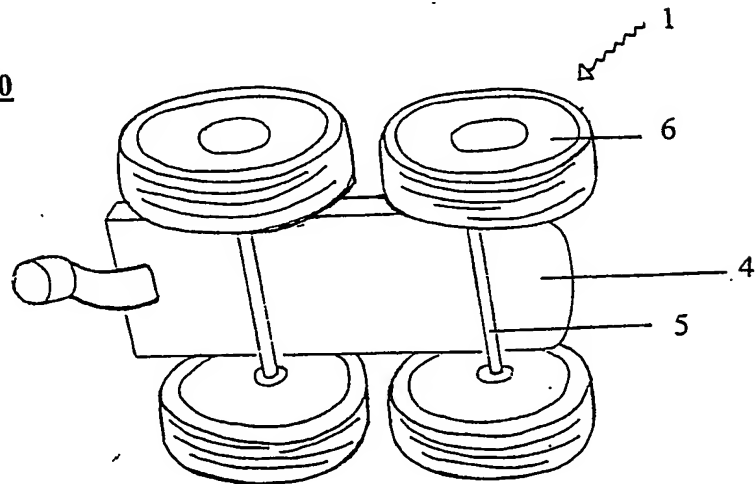


Figure 9Figure 10Figure 11